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Wisconsin Electric
A WISCONSIN ENERGY COMPANY

January 31, 2001

Hand-Delivered

James Loock
Chief Engineer – Electric Division
Public Service Commission
P. O. Box 7854
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Dear Mr. Loock:

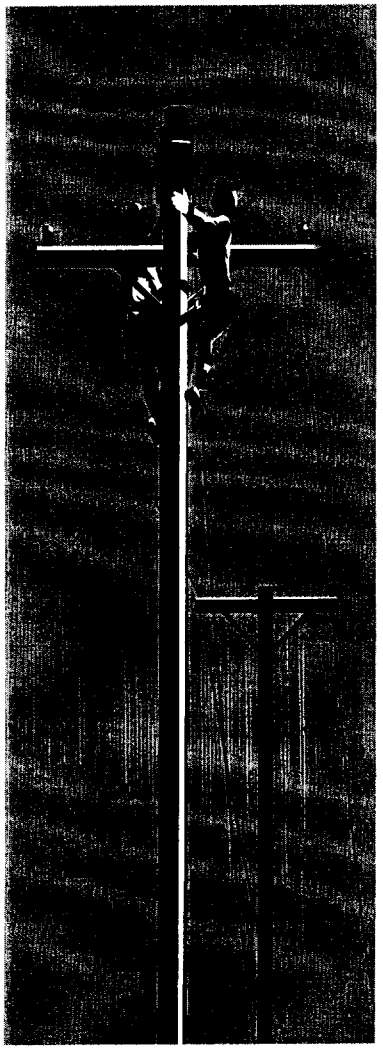
Enclosed are Wisconsin Electric's preventative maintenance plans. The plans are divided into three: (1) distribution operations; (2) fossil generation; and (3) generation at Point Beach Nuclear Power Plant. These plans are filed in compliance with Wis. Adm. Rule PSC 113.0607, effective August 1st, 2000.

If you have any questions or require additional information, please call Paul Farron at (414)-221-3958.

Sincerely,

Roman A. Draba

Roman A. Draba
Assistant Vice President
State Regulatory Affairs



Wisconsin Electric Power Company

Electric Distribution System Inspection & Maintenance Programs

January 30, 2001

Wisconsin Electric Power Company
Electric Distribution System
Inspection and Maintenance Programs

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Introduction

Wisconsin Electric's inspection and maintenance programs work in concert with other corporate initiatives including system improvement projects, rural rebuild projects, and reliability improvement programs to:

- provide a safe working environment for company and contractor employees
- safeguard the public
- deliver a reliable product at a price and quality that represents value to our customers
- protect valuable corporate assets from damage or loss while extending their useful life

The electric distribution system consists of approximately 27,000 miles of overhead and underground primary voltage circuit conductors and 30,000 miles of secondary voltage circuit conductors. The system includes nearly 700,000 poles, 100,000 protective devices, and 230,000 utilization transformers with their own protective devices.

More than 20 inspection and maintenance programs are typically active at any given time. Inspection and condition based monitoring is used to identify equipment that requires corrective maintenance. Corrective measures can be classified as:

- Urgent – requiring immediate attention
- Important – address as soon as arrangements can be made
- Attention Needed – can be completed with other maintenance or as time allows

Maintenance schedules take into consideration past history and current performance. Programs are reviewed annually to determine if they are meeting expectations. New programs are added, unneeded programs are eliminated and programs that need to be changed are adjusted to protect assets and maintain or improve reliability. Wisconsin Electric's current inspection and maintenance programs are described in this report under the following categories:

- Overhead Line Clearance (Forestry)
- Overhead Line Maintenance
- Underground and URD Line Maintenance
- Substation Maintenance Projects
- Substation Maintenance Programs

Each section emphasizes the process employed, guidelines followed, and data collected for a specific program.

This report was developed and is submitted in compliance with requirements specified in PSCW Section 113.0607, which became effective August 1, 2000.

Overhead Line Clearance Forestry Program

Overhead Line Clearance Forestry Program

Program Scope:

Wisconsin Electric maintains nearly1,870 distribution circuits involving over 19,000 miles of overhead lines. The Overhead Line Clearance Forestry Program is designed to provide clearance between overhead electrical facilities and trees that grow in proximity to those lines. The cycle trimming component of the program ensures that circuits are inspected periodically and any trimming or removal work necessary to maintain line clearance is performed. Trimming and removing trees near electrical facilities maintains or enhances system reliability and promotes public safety. Tree species, maturity, density and proximity to overhead electric facilities directly effect the need for trimming or removal. Therefore, while it is desirable to trim circuits every four years, some circuits are trimmed more or less frequently.

Forestry crews visually inspect the condition of overhead distribution facilities whenever they trim or remove trees. Defects observed are recorded and referred to area construction personnel under the Overhead Line Maintenance Program (see page 12) for corrective actions.

Process:

The 'year last trimmed' and suggested 'next trim year' is maintained for each distribution circuit. This information and recent reliability performance data are used to develop the annual cycle trimming work plan.

Field Work Packets:

Maps that include the circuit route and geographic background are generated for each circuit to be trimmed.

Inspection and Maintenance:

Tree trimming standards recommended by national tree care organizations are followed when trimming.

Field Reporting:

Forestry crews prepare a 'Forestry Weekly Report' form identifying hours spent on cycle trimming. Overhead distribution system defects are reported on an 'Integrated Maintenance Defect Report ' form. The date trimming was completed and a suggested next trim year are recorded on the map.

Data Management:

Circuit characteristics and forestry information are maintained for all distribution circuits. Data elements captured include:

- Circuit Number
- Substation Name
- Substation Operating Area
- Source Circuit Number
- Circuit Voltage Classification
- Circuit Last Trimmed Year
- Circuit Next Trim Year
- Circuit Originally Scheduled Next Trim Year
- Total Circuit Trim Hours
- Circuit Forestry Cycle Number
- Substation to First Protective Device Trim Miles
- Total Circuit Miles
- Comments

The Forestry Program administrator and area foresters update this data as circuit trimming is completed.

Overhead Electric Distribution System Inspection and Maintenance Programs

Distribution Automation Switch Maintenance Program

Program Scope:

The Distribution Automation Switch Maintenance Program provides for safe and reliable operation of automated switches, and the associated communications equipment and control schemes used on circuits outside of the substation. Routine maintenance, including an operational test and battery replacement is performed on each switch every three years. An operational test is also performed whenever modifications are made to a switch or its control scheme.

Process:

The program administrator develops a list of switches to be maintained each year. Field testers perform maintenance according to the following procedure.

DA System Switch Maintenance Procedure

Arrangements are made with the distribution dispatcher prior to any testing and appropriate measures are taken to ensure that operating the switch will not adversely affect the distribution system.

- Field Mechanical Maintenance
  - Record the switch number and control settings prior to operating the switch.
  - Verify that the information recorded coincides with information available from the distribution dispatcher.
  - Obtain voltage and current information from the distribution dispatcher.
  - Simulate or cause all alarms and verify that the distribution dispatcher receives them.
- Field Operational Testing
  - Verify proper operation under Local Control setting.
  - Verify proper operation under Remote Control setting.
  - Verify proper operation under Manual operation.

Field Reporting:

The field tester returns information on completed field tests to the program administrator for processing.

Data Management:

The program administrator maintains information on the location of each DA Switch installed on the distribution system. The following data are captured for each switch location.

- SLB Number
- MLB Number
- DART Number
- Location
- Status/Comment
- Circuit Number
- Engineer

Maintenance history captured using the procedures identified previously in this section is also retained.

Line Capacitor Bank Maintenance Program

Program Scope:

Wisconsin Electric's distribution system utilizes pole top capacitor banks for circuit power conditioning. Capacitor banks are either continuously energized or switched in and out using a FM radio signal and predefined schedules designed to meet power-conditioning needs. Exposure to adverse weather conditions, especially lightning, can cause current limiting fuses to operate or result in component failures. The Capacitor Bank Inspection and Maintenance Program provides a means for mechanically identifying capacitor bank problems. Field inspections of suspected problems result in repairs or replacement and return of banks to normal operation.

Process:

Substation metering equipment provides leading and lagging KVAR data for over 600 distribution circuits. Recent fifteen-minute data is used to determine total KVAR by phase for each circuit to be reviewed. The results are plotted against time and the graphs are analyzed to determine if the circuit's capacitor banks are operating correctly.

Capacitor banks with suspected problems and banks for which metering data is not available are field checked to determine if they are operating correctly. Personnel who perform the field checks complete any minor corrective maintenance required. More significant maintenance is referred to the program administrator or area construction personnel for follow up. Construction personnel complete the work and return the capacitor bank to service.

Field Work Packets:

Each suspected capacitor bank problem is referred for field checking using a "Capacitor Bank Inspection Referral Form". The form includes basic circuit and capacitor bank location information along with an indication of the suspected problem. The following data elements are captured on this form.

- Capacitor Bank Number
- Capacitor Bank Location
- Circuit Number
- Capacitor Bank Size
- Capacitor Bank Schedule Number
- Suspected Problem
- Date Form Issued
- Date Capacitor Bank Inspected
- Troubleshooter Name

- Defects Found and Corrections Completed
- Follow Up Work Required
- Apparent Cause for Damage/Failure

Inspection and Testing:

Guidelines for capacitor bank installation, removal, troubleshooting, and maintenance are published in the company's Work Procedures Manual. These guidelines are used to:

- Visually inspect all components
- Troubleshoot component equipment
- Replace minor equipment
- Return the capacitor bank to service

Field Reporting:

The as found condition and corrective actions taken are noted on the "Capacitor Bank Inspection Referral Form". Corrective actions that must be completed by a construction crew are also reported on the form. The form is returned to the program administrator for follow up.

Construction Crew Follow Up Work:

Metering data is rerun a few weeks after corrective maintenance has been completed to verify that capacitor banks returned to service are operating correctly.

Data Management:

The following data are retained for each suspect capacitor bank reviewed.

- Circuit Number
- Capacitor Bank ID
- Capacitor Bank Location
- Date Inspected
- Suspected Problem
- Corrective Actions Completed
- Date Corrective Actions Completed
- 'A' Phase KVAR Restored
- 'B' Phase KVAR Restored
- 'C' Phase KVAR Restored.

Overhead Line Maintenance Work Identified by Forestry

Program Scope:

The Overhead Line Maintenance Program includes inspection of the overhead distribution system for defects and correction of any defects found. Forestry crews visually inspect the condition of facilities whenever they trim or remove trees. Defects observed are recorded and referred to area construction personnel for review and completion of corrective actions.

Process:

The forestry crew replaces missing warning signs and guy markers. Distribution system defects are recorded on an 'Integrated Maintenance Defect Report' form and referred to the appropriate Service Center for corrective action. Reportable defects include:

- Poles that are broken, leaning or otherwise defective
- Guy anchors and markers that are loose, broken or missing
- Grounds that are broken
- Equipment that is found to be loose, leaking or damaged
- Crossarms and braces that are loose, broken, rotted or burned
- Clearances that are inadequate
- Secondary and service drops that are bare and in trees
- Service drops that are pulled out at the building
- Primary taps that have no load
- Communications down guys that do not have an insulator

Field Reporting:

Area construction personnel take the actions necessary to correct reported defects and note those actions as complete on the report form which is sent to the program administrator for follow up.

Data Management:

Records of defects reported and the status of corrective actions are maintained. Reports showing defects with corrective actions pending are provided to the Service Centers each month. The following data are captured for each overhead line maintenance defect reported.

- Date Defect Identified
- Defect Type
- Pole Number
- Pole Location
- Date Defect Corrected
- Remarks

Pole Inspection and Maintenance Program

Program Scope:

A pole's useful life is a function of its species, use, effects of weather, soil conditions, ground line pole treatment, and susceptibility to damage. New service extensions, major system improvement projects, municipal relocations, the Overhead Line Maintenance Program, and storm restoration efforts ensure that this plant is renewed. The Pole Inspection and Maintenance Program targets wood pole plant that is not addressed through one of these initiatives.

Process:

The most effective way to determine pole condition is through a detailed field inspection. Approximately 20,000 poles in areas having high concentration of older poles are targeted for inspection each year. Inspection requirements vary based on the age of the pole. Relatively new poles may only receive a visual inspection. Older poles, where deterioration is visible or suspected, receive extensive visual and exploratory inspection. Poles with minor deterioration are treated. Poles with major deterioration are tagged and reported for reinforcement or replacement.

Field Work Packets:

Maps of the distribution system showing pole locations and background geography are plotted for each area to be inspected. Field personnel use these maps to perform inspections, report completions, and to identify any follow up actions completed or required.

Pole Inspection and Treatment:

All poles shown on the map are inspected, regardless of age. The following guidelines are used to determine the level of inspection required.

- All poles tagged or recorded as being less than or equal to 20 years old are visually inspected for general condition including structural integrity and suitability to support equipment. Any defects that might present a hazard to company personnel or the public are noted for follow up. Missing or deteriorated "Warning – High Voltage" signs are noted and replaced.
- All poles tagged or recorded as being older than 20 years and poles less than or equal to 20 years old where ground line or internal deterioration is suspected are sounded and inspected at the ground line in addition to the visual inspection described under the previous item.
- Should sounding or ground line inspection suggest that further internal testing is needed, the pole is bored to determine the presence and/or extent of internal damage.

- Poles with ground line decay that have a circumference and shell thickness that exceeds criteria set forth in the National Electric Safety Code are treated with a preservative and surface wrap to extend their useful life.
- Poles with internal voids that have a circumference and shell thickness that exceeds criteria set forth in the National Electric Safety Code are treated with a preservative or fumigant to extend their useful life.
- Poles with ground line decay or internal voids that have a circumference and shell thickness that does not meet criteria set forth in the National Electric Safety Code are tagged to indicate they may not be climbed unless temporarily supported. These poles are scheduled for reinforcement or replacement.

Field Reporting:

Field inspectors note poles requiring reinforcement or replacement on the maps provided. Mapping discrepancies, such as poles shown on the map not found in the field and poles found in the field not shown on the map, are also noted. The following data is captured electronically using a field data collection device.

- Pole Number
- Date of Inspection
- Pole Status
- Treatment Indicator

Pole Reinforcement:

Reinforcement is less expensive than replacement and can extend the useful life of a pole with extensive ground line or internal decay. This alternative is also well suited to situations where pole accessibility or potential property disturbance may be an issue. The process involves pneumatically driving an eight-foot "C" channel into the ground adjacent to the pole. The pole and "C" channel are then banded together. Poles targeted for replacement may be reinforced if:

- Wisconsin Electric is the pole owner.
- Ground line decay does not extend more than 12 inches above or below the ground line.
- Internal voids do not extend within two inches of the pole surface.
- The pole does not have electric or communications risers
- The above ground portion of the pole is sound and has a good climbing surface.
- Pole framing and equipment is in good condition.
- Only one "C" channel is required to reinforce the pole.
- The estimated pole life with reinforcement is expected to exceed 10 years.

Pole Replacement:

Construction orders are issued to the appropriate Service Center for poles requiring replacement.

Data Management:

Information concerning areas targeted for inspection and the status of inspections in those areas include the following data.

- Operating Map
- WE Area
- Municipality
- Date Map Requested
- Number of Poles
- Date Map Sent to Contractor
- Date Map Returned from Contractor
- Number of Poles Rejected
- Number of Poles Rejected – Construction Order Issued
- Number of Poles Rejected – Construction Order Released
- Number of Poles Rejected – Construction Order Complete
- Number of Reinforcements – Released to Contractor
- Number of Reinforcements – Completed by Contractor
- Number of Poles Rejected - Telephone to Replace

The following data is also captured for each pole inspected.

- Inspector
- Effective Ground Line Circumference
- Date Inspected
- Inspection Data
- Municipality
- C Tag Installed
- Species
- Liquid Injection Preservative
- Year Installed
- Foreign Pole
- Operating Map Number
- Warning High Voltage Sign Installed
- Distribution Map Number
- Fumigate
- Pole Number
- Remarks
- Height/Class
- Candidate for Reinforcement Indicator
- Corrective Action - Replaced/Reinforced

Single Interrupter Switch Replacement Program

Program Scope:

The Single Interrupter Switch Replacement Program targets replacement of approximately 200, 600-ampere switches that have a history of pivoting on the lower hinge causing misalignment between the blade and receiver when the switch is closed.

Process:

Various sources were used to identify switch locations. Operating and construction personnel were also asked for their input on known locations. This information was compiled into a listing of replacement sites that is updated as additional sites are found.

Field Work Packets:

An updated listing of replacement sites is provided to the operating areas periodically. Service Center personnel prepare construction orders to replace switches with either a redesigned model from the same manufacturer or switches available from other approved vendors. Replacement is scheduled and completed by construction personnel.

Field Reporting:

Service Center personnel notify the program administrator when each replacement is complete.

Data Management:

The program administrator maintains a listing of all known switch installation sites. The following data are captured for each site.

- Responsible Service Center
- Original Order To Do Work Number
- Descriptive Location
- Political Subdivision Number
- Job Code
- Reference Sequence Number
- Installed Quantity
- Installation Operational Indicator
- Date Completed
- Facility Map Number
- Replacement Status

Street and Area Light Maintenance Program

Program Scope:

Wisconsin Electric owns and maintains over 100,000 street and area lights. The Street and Area Light Maintenance Program addresses cycle cleaning and re-lamping of these units. Lamp burn outs and fixture problems including accidental damage and vandalism are addressed as trouble work.

Street and Area Light Cycle Maintenance

Field Work Packets:

Approximately 25% of all company owned street and area lights are scheduled for maintenance each year. Targeted lights are grouped by municipality, and maps showing the location of each street and area light are generated. These maps constitute crew work packets used to direct and report maintenance activities.

Inspection and Maintenance:

The maintenance crew:

- Relamps all company owned lighting units within the geographic boundaries of the map
- Replaces photo controls if found to be defective or older than four years
- Cleans all fixtures
- Installs new bird guards if found to be missing or broken
- Tests each unit for proper operation
- Makes minor repairs
- Completes a 'Night Aura Maintenance Report' form for each light that requires major repairs or replacement and forwards the report to the appropriate Service Center.
- Affixes an appropriate sticker to fixture indicating when maintenance was last done

Field Reporting:

The maintenance crew:

- Enters inventory and maintenance data to a GPS/data collection device for each unit maintained
- Updates maps to reflect lights found in the field but not shown on the maps and lights shown on the maps but not found in the field

Data Management:

The program administrator maintains records for each street and area light. Data maintained includes:

- Unique identifying number
- Longitude
- Latitude
- "X" Coordinate
- "Y" Coordinate
- Pole Number
- Pole Status
- Pole Material
- Pole Color
- Service
- Facilities
- Classification
- Fixture Type
- Fixture Color
- Quantity
- Wattage
- Lamp Source
- Position
- Fixture Manufacturer
- Climb only indicator
- Additional work
- Comments
- Date
- Time

Street and Area Light Burn Outs

Process:

Customer calls concerning street or area light burn outs are received at the Customer Contact Center and entered in the Outage Management System (OMS). A Troubleshooter performs a field investigation and completes any minor repairs that may be required. The Troubleshooter reports the light returned to service or refers the problem to Service Center personnel for repairs or replacement.

Data Management:

- Records associated with customer reports of street or area light burn outs are maintained in the company's Outage Management System (OMS)
- Records associated with Troubleshooter actions regarding customer reports of street or area lights out are maintained by Distribution Dispatch.

Thermal Scanning Equipment and Connections

Program Scope:

Thermal imaging allows identification of situations where excessive heating could lead to equipment or connection failure and the possibility of an outage. Using predetermined temperature variance guidelines; equipment or connections showing excessive heating are referred to maintenance or construction personnel for corrective actions. Camera images are used to show temperature variations between components and related equipment or connections.

Process:

Wisconsin Electric's thermal scanning program has both a planned and a reactive component. The planned component involves scanning approximately 350 distribution substations between mid March and mid May each year. Thermal images and an associated report are generated for each device or connection showing excessive heating. Corrective actions are completed immediately if necessary, or are grouped with other planned maintenance activities if immediate attention is not required.

The reactive aspect of the program supports area reliability and operating personnel as they address specific system reliability problems. Requests can be limited to scanning a specific piece of equipment or might involve an entire distribution circuit. Thermal images and associated reports of suspect equipment or connections are routed to the requesting reliability or operating personnel for follow up.

Field Procedures:

Planned Work

Camera operators use established substation inspection routes to perform their annual thermal scanning. Each station on the route is visited and all equipment and connections are scanned. Digital images of any 'hot spots' are captured along with any pertinent field observations.

Reactive Work

Camera operators are provided a map of the circuit or equipment to be reviewed for all 'spot requests'. Unless specifically requested to perform a complete circuit review, 'spot requests' are generally limited to main line facilities. Digital images of 'hot spots' are captured along with any pertinent field observations.

Field Reporting:

Camera images are uploaded to a report generator. These images are inserted into reports containing location and condition information as well as fields for corrective actions and the date those actions were completed. Reports are forwarded with field repair orders to the appropriate Service Center for follow up.

Data Management:

The program administrator maintains database records for all thermal-imaging requests.

- Request Identifier
- Requester
- Circuit/Substation
- Request Description
- Priority
- Date Requested
- Requested Complete By Date
- Date Scheduled
- Request Miles
- Camera Operator Assigned
- Defects Found
- Scanning Complete
- Maintenance Complete

Underground and URD System Inspection and Maintenance Programs

Vault Oil Switch Replacement Program

Program Scope:

Older vintage oil switches that do not have a spring assisted operator mechanism and installed in vaults are being replaced under the Vault Oil Switch Replacement Program. Wisconsin Electric has implemented operating procedures that allow these switches to be operated safely while pursing replacement to obtain improved operating flexibility.

Process:

The program administrator maintains a list of vaults and manholes where these switches have been installed. The program administrator determines which switches will be replaced each year and requests area engineering prepare the necessary construction orders.

Field Work Packets:

A construction order covering removal of the old switches, installation of new switches and modifications to the vault or manhole is prepared for each location. Underground construction personnel schedule and complete the replacement.

Data Management:

The program administrator tracks the status of replacement activities.

Ground Mounted Equipment (Padmount) Inspection and Maintenance Program

Program Scope:

Approximately 120,000 switch fuse units, vacuum fault interrupters, pad mounted transformers, primary junction enclosures and secondary power pedestals are installed on the electric distribution system. The Ground Mounted Equipment Inspection and Maintenance Program provides for a security, structural integrity and external condition check of each device approximately once every five years. Defects are referred to area construction personnel who complete necessary corrective actions.

Process:

Approximately 20% of the ground-mounted equipment installed on the electric distribution system are selected for inspection each year. Instructions for performing inspections and the guidelines listed in the remainder of this section assist area personnel in performing the inspection and maintenance work.

Field Work Packets:

Maps covering the current year inspection area are forwarded to the Service Centers. As inspections are completed codes identifying defects found as well as the status of corrective actions are recorded on these maps. Completed maps are returned to the program administrator for follow up.

External Security Inspection Procedures:

The goal of this program is first and foremost to ensure public safety. Inspectors are responsible for identifying, and where possible, resolving problems discovered during the field inspection.

The following inspector instructions provide standard procedures that ensure required corrective actions are reported and completed or referred for follow up.

- An external security inspection is performed on the following devices:
  - Switch Fuse Units and Vacuum Fault Interrupter Units
  - Primary and Sub-Transmission Pad Mounted Transformers
  - Primary and Sub-Transmission Junction Enclosures
  - Secondary Power Pedestals
- Unlocked or unsealed units, units with rust holes that allow access to the interior, or units with exposed cables are not left until properly secured.
- Pentahead bolts are checked to make sure they are present and tight.
- Warning signs are installed or replaced as needed.

Data Management:

Status reports showing all high priority corrective maintenance are provided to the Service Centers each month. Reports showing the status of low priority work are provided to the Service Centers annually. Area Service Centers report work completions to the program administrator who ensures that records are updated. The following data are collected for each unit inspected or maintained.

- Unit Number
- Unit Type
- Inspector Name
- Map Number
- Inspection Date
- Unit Location
- Political Subdivision Number
- Operating District
- WE Serial Number
- Manufacturer Serial Number
- Inspection/Maintenance Code
- Date Inspection/Maintenance Code Completed

Ground Mounted Equipment Painting:

Cabinets with rusted or paint deterioration may eventually develop a weakened surface or rust holes. Ground mounted enclosures with significant finish deterioration or rust are candidates for painting. Painting work is routed to a contractor each year as soon as the weather is suitable for painting.

Painting Field Procedures:

The contractor re-inspects the enclosure for:

- Accessibility – Checked for nearby bushes, trees, etc. and cleared when necessary.
- Minor Oil Leaks – Checked for oil leaks that would prevent paint from adhering to the enclosure surface.
- Excessive Oil Leaks – Checked to determine if the amount of oil that has leaked warrants replacing the unit.
- Security – Checked to ensure the lock or seal is in place and secured.
- Holes/Rust – Checked to determine if field repair is required prior to painting or if the amount of rust warrants replacing the unit.

Wisconsin Electric's storeroom personnel are contacted regarding units that have holes. Units that can not be repaired in the field are referred to area construction personnel for replacement.

Manhole Inspection and Maintenance Program

Program Scope:

The Manhole Inspection and Maintenance Program ensures that manholes are inspected periodically and are structurally sound, and that cables and electrical devices are maintained in good operating condition. Wisconsin Electric maintains approximately 11,000 manholes on its electric distribution system. Manholes are inspected whenever entered to perform work. "Program Related" inspections supplement these "Job Related" inspections to ensure that all manholes are inspected periodically and that necessary maintenance is performed.

Process:

A 'Manhole Inspection/Maintenance Report Form' and an 'Underground Cable Construction and Maintenance Report' are completed for each "Job Related" manhole inspection. The 'Underground Cable Construction and Maintenance Report' charts cable training in the manhole. A maintenance follow up order is generated for any repairs that can not be completed at the time of inspection. More involved corrective actions are referred to engineering for follow up.

Field Work Packets:

A 'Scheduled Inspection Order' is used to perform a "Program Related" inspection. Cable, equipment and anode information from the last inspection is provided on the report. Information is updated and new inspection and maintenance information is entered on the form when the manhole is inspected.

Inspection and Maintenance:

The following lists defect and repair descriptions used in completing 'Manhole Inspection/Maintenance Report' forms.

- Manhole Structure
  - Inspect Structure, OK
  - Gas In Manhole
  - Clean Manhole
  - Adjust Curb Cap Cover
  - Replace Curb Cap Cover
  - Repair hatchway
  - Repair Chimney
  - Replace Ladder
  - Clean Vents
  - Roof Deteriorating
  - Walls Deteriorating

- Floor Deteriorating
- Replace Channel Iron
- Inspect Sump Pump, OK
- Replace Sump Pump
- Abandon Manhole
- Other, Describe

- Cable

  - Inspect cable, OK
  - Cable Leaking
  - Cable Leaking From Duct
  - Cable Lead Corrosion
  - Splice Out Cable
  - Retrain Cable
  - Replace Faulted cable
  - Replace Corroded Cable
  - Joint Swelled
  - Joint Sucked In
  - Joint Ruptured/Leaking
  - Install Yoke
  - Replace Yoke
  - Protect Cable At Hooks
  - Fireproofing, Asbestos Removal
  - Inspect Anode, OK
  - Install Anode
  - Replace Anode

- Equipment

  - Porcelain Leaking
  - Body Leaking
  - Rusting, Replace
  - Replace Bracket
  - Replace Bus Support
  - Refasten Bus Support
  - Junction Box Rusting, Repair

A tag indicating that the manhole has been inspected is hung on the manhole ladder when the inspection is complete. The tag provides the manhole number, date last inspected and the name of the individual that performed the inspection. Repairs are scheduled based on priority and availability of construction resources.

Field Reporting:

The following guidelines are provided to underground construction personnel for use in completing Manhole Inspection/Maintenance Report Forms.

- Complete a report form for each manhole inspected.
- Enter the codes for manhole structure and cable that indicate you have inspected the manhole and found it to be ok or inspected the manhole and repaired any defects found.
- Enter information for each circuit in the manhole.
- Enter an estimate of the original anode size, if one is present, and the percent remaining at the time of the inspection.
- Note repairs that need to be completed in a follow up visit along with a priority code for each follow up.

Data Management:

The following table lists data maintained for the Manhole Inspection and Maintenance Program.

- Manhole Number
- Manhole Location
- Conduit Map Number
- District Code
- Inspector Name
- Planned/Job Associated Inspection
- Inspection Date
- Inspection Code
- Inspection Code Description
- Equipment Identification Number
- Inspection Circuit Voltage Designation
- Inspection Circuit Number
- Inspection Circuit Suffix
- Outage Required Indicator
- Repair Priority Number
- Anode Original Size
- Anode Percent Remaining
- Repair Code
- Repair Circuit Voltage Designation
- Repair Circuit Number
- Repair Description
- Repair Date
- Repaired By Name
- Repair Hours
- Type of Cable Used

- Length of Cable Used
- Cost of Cable Per Unit
- Size of Sleeves Used
- Number of Sleeves Used
- Cost Per Sleeve

Switch Fuse/VFI Unit Replacement Program

Program Scope:

Live Front Switch Fuse Units were installed throughout the 1970s. Operating problems have surfaced over the years with some of these units and the first generation Vacuum Fault Interrupter (VFI) units that replaced them. The degraded condition of a unit and its cables can lead to a flash over and damage to the unit that could result in an extended outage. The Switch Fuse Unit/VFI Replacement Program is intended to identify at risk units and replace them before a failure occurs.

Process:

At risk units are identified through the Ground Mounted Equipment Inspection and Maintenance Program. Operating, construction, and engineering personnel also identify suspect units in the performance of their normal work. Units identified for repair or replacement are referred to engineering for follow up.

Field Work Packets:

Engineering prepares a construction order for each unit to be replaced. Construction personnel perform the work and report completion.

Data Management:

Engineering monitors the status of all units to be replaced or eliminated and provides monthly status updates to the Inspection and Maintenance Programs coordinator.

Underground and URD Cable Testing and Replacement Program (Pilot)

Program Scope:

Partial discharge occurs when cables sustain mechanical damage, develop electrical or water trees, or sustains molecular damage due to being operated over rating. Joints that have been improperly made are also a significant source for partial discharge. Program testing identifies at risk cables so that corrective actions can be taken before a failure occurs.

Two methods for identifying partial discharge in cables are being evaluated by Wisconsin Electric. One method requires that cables are de-energized and isolated when tested, the other does not. Pilot results will be used to determine whether or not an expanded program is warranted.

Process:

Direct buried cables with a history of failures were selected for the pilot. A vendor that uses one of the methodologies tested selected cables for partial discharge. A second vendor, one that uses the other methodology, tested the same cables for partial discharge. A Wisconsin Electric engineer participated in the testing to evaluate processes employed and findings obtained. Those findings and the engineer's recommendations are being summarized and will be used to determine if an expanded program should be pursued.

Substation Maintenance Projects

Substation Maintenance Projects Resulting From Equipment Failures

Program Scope:

Equipment, protective and monitoring devices, conductors and buses, and controls, are loaded and unloaded, opened and closed, exposed to the elements, and subject to bird and animal contact. Over time these conditions can effect performance. The Substation Projects Resulting From Equipment Failures program is designed to address repair or replacement of equipment or components that fail.

Process:

Problems that have not yet led to an outage might be identified during periodic equipment inspections or when performing routine maintenance. Equipment degradation or failure that results in a system outage is resolved when it occurs. Notification of an outage may come from system control and monitoring equipment or might be provided by customers affected by the outage. Troubleshooters are generally the 'first responder' to these events. They identify and isolate the problem, and work with Distribution Dispatch to return service as quickly as possible. Failures that require follow up are referred to the substation maintenance group.

Unique projects are created for permanent repairs or replacements that require engineering, involve work that needs to be scheduled, or involve the replacement of units of property. These projects might include battery bank, capacitor bank, Load Tap Changer control, and cable replacements

Data Management:

The following data are captured for each project.

- Internal Order Number
- Requester Name
- Budget Category
- Priority Number
- Substation Name
- Job Description
- Engineering Completion Date
- Major Equipment Delivery Date
- Early Start Date
- Planned In Service Date
- Current In Service Date
- Construction % Complete
- Project manager
- Project Engineer

- Contract Engineer
- Engineering Design Hours
- Engineering % Complete
- Engineering Hours Remaining
- Civil Drafting Hours
- Electrical Drafting Hours
- Contract Construction Hours
- Construction Supervisor
- Civil Construction Hours
- Underground Construction Hours
- Electrician Construction Hours
- Relay Testing/SCADA Hours
- Start-Up Hours
- Comments

Substation Planned Maintenance Projects

Program Scope:

Wisconsin Electric's Substation Planned Maintenance Projects are the product of engineering research into failures and operating issues that effect substation equipment and devices. Research includes a review of:

- Repairs history
- Impact of failures on reliability
- Parts availability
- Long term effects of repairs on useful life
- Failure rates for similar equipment

This research leads to projects designed to improve system performance. Examples include replacement of breakers known to have operating problems, installation of Load Tap Changer filters and monitors, installation of animal insulation materials and upgrading substation auto change over controls.

Process:

Failures, condition targets and inspection and maintenance results serve as inputs to the program. Input is also obtained from operating personnel, vendors, other utilities and Wisconsin Electric's Supply Chain personnel. Maintenance engineers collect this information and develop solutions. Projects are added as planned substation maintenance projects with a scope, time line and estimated cost.

Field Work Packets:

Vendor installation instructions, engineering drawings, wiring diagrams, work specifications, and material lists are provided to construction crews as aids in completing project work.

Work Reporting:

Field changes that effect substation wiring diagrams and other drawings are reported to drafting.

Data Management:

Data maintained is listed under the Substation Maintenance Projects Resulting From Equipment Failures program description, Data Management section.

Substation Maintenance Programs

Substation Preventive and Corrective Maintenance Program

Program Scope:

The Substation Preventive and Corrective Maintenance Program addresses periodic maintenance necessary to keep equipment and components operating within design specifications. Preventive maintenance (PM) is performed according to a prescribed schedule or when needed as identified from on-line and off-line monitoring equipment. Equipment found through a PM or periodic inspection that is not performing within design parameters is adjusted, repaired or replaced as a corrective maintenance (CM) measure.

Process:

Preventive Maintenance

A record and recent maintenance history is available for each substation component. Records identify the type of equipment, manufacturer, substation where the equipment is installed, equipment use, maintenance priority, date last maintained and the target date for the next preventive maintenance. The following criteria are considered in establishing PM priorities.

- Potential impact on public/employee safety
- Potential risk of damage to assets having the highest value
- Potential risk of outages to a large number of customers
- Potential risk of an extended outage
- Potential impact on the useful life of the equipment

Inspection and Corrective Maintenance

Distribution substations are inspected periodically throughout the year. Guidelines used to conduct these inspections ensure that security measures are in place, that site conditions are conducive to safe and reliable operation of the substation, that the control house adequately protects equipment from the elements and that electrical equipment is in good operating condition. The following elements are inspected.

- Fences, gates, secured and locked
- Outdoor lighting operable
- Signs in place and readable
- Snow and water accumulation under control
- Grass cutting and weed control managed
- Yard graded properly
- Trash picked up
- Windows and doors secured
- No roof leaks

- Area and exit lighting operating
- Heating and ventilating equipment operable
- Tools and equipment used to operate the station in good working order
- Control board configured correctly

Outdoor equipment - The following equipment is inspected to ensure it is in good working condition and operating correctly.

- Auxiliary equipment
- Breakers
- Bus
- Bushings
- Capacitor banks
- Cathodic protection
- Circuit Switchers
- Conductors
- Cooling fans
- Disconnect switches
- Load break switches
- Load tap changers
- Operating Mechanisms
- Potheads
- Power Fuses
- Pumps
- Reclosers
- Substation grounds
- Surge Arresters
- Transformers
- Transformer Radiators

Field Work Packets:

A field order is generated for each PM or CM to be assigned.

Field Reporting:

A maintenance crew completes the work and reports the order complete. Significant CM work identified through completion of a PM task is referred for scheduling.

Data Management:

The substation maintenance database is the principal repository for information on substation equipment and periodic maintenance activities. Equipment specifications, installed location and maintenance schedule are key element of the data retained.

Relay Testing Program

Program Scope:

The goal of the Relay Testing Program is to verify proper operation and calibration of protective relaying. From a safety perspective, testing provides a level of confidence that a system failure will not compromise the safety of employees or the public. From an operating perspective, testing provides a level of assurance that these devices will reliably disconnect faulted equipment from the system, minimizing damage to the faulted as well as other system equipment. From a reliability perspective, testing provides a level of assurance that protective relaying will function when needed to minimize the number of customers affected by an outage and the time required to restore service. The proactive component of the program involves periodically testing (routine testing) all protective relays. Additional reactive investigation and testing is performed after an apparent incorrect operation or the report of a relay alarm (corrective maintenance). Repairs, adjustments or replacement of faulty relaying are made as needed to return devices to proper operation.

Process:

Proactive Testing

Work plans are developed by balancing a list of relays to be tested and the resources required to support the work against the number of testing personnel and resources expected to be available.

Reactive Testing

Investigations usually begins with a discussion between the relay technician, or engineer, and the Distribution Dispatcher, in an effort to better understand the system problem that occurred and to determine why protective relaying is suspect. The relay technician or engineer performs a routine test on all protective relaying involved, adjusts, repairs or replaces any components not performing within specifications, and reports corrective actions taken.

Field Work Packets:

Relay technicians and engineers use relay test values from a System Protection (SYSPROT) database when performing periodic tests.

Inspection and Maintenance:

Relays are tested according to manufacturer guidelines with some modifications made based on Wisconsin Electric experience and differences in test equipment. If a relay can not be adjusted to operate within tolerance, the relay is replaced.

Relay Testing Guidelines – At Commissioning

- The relay is checked against the setting sheets for correct application and the availability of external auxiliary circuits for correct operation.
- Records are prepared for all relay and trip functions.
- Blocking and foreign material are removed.
- The relay is visually inspected for damage.
- Accessible contacts are cleaned.
- Gap and wipe are checked according to manufacturer's specifications.
- Moveable parts are inspected for ease of operation, cleaned and adjusted according to manufacturer's specifications.
- An overall operational test of the relay system is performed.
- Potential, current or trip circuit inputs are operationally verified.
- Relay targets are tested.
- Trip tests are made to the device tripped from all paths.
- Relay alarms are actuated and identified.
- Current transformers are ratio and saturation tested.
- Supply circuits are checked for magnitude, polarity, and proper branch operation
- Readings of current, voltage and phase angle, as appropriate, are made verified, and recorded.

Relay Testing Guidelines – Routine Tests

- A visual inspection is made for overheating or discoloration.
- Electrical connections are checked for tightness.
- Rotating elements and shaft bearings are checked for positioning, freedom, and end play.
- Springs are checked for proper convolutions, fatigue, and positioning.
- Contacts, backstops and covers are cleaned.
- Relay operating and calibration settings are verified.
- Relay targets and alarm functions are tested.

Field Reporting:

The relay technician or engineer updates SYSPROT with the test completion date, tester initials, the reason for test code, the adjustments made code, and the amount of time it took to complete the test. If repairs are performed or the relay is replaced, a corrective action report form noting the relay involved and corrective actions taken is also completed.

Data Management:

A record and recent maintenance history is available for each protective relay installed on the electric distribution system. This information is maintained in the System Protection (SYSPROT) application. Records identify the relay type, manufacturer, substation where the

relay is installed, relay use, date last tested, testing cycle, and the target date for the next periodic test.

SCADA Maintenance Program

Program Scope:

Control and automation equipment located in distribution substations provides operators with the ability to monitor conditions and equipment status, and to operate devices from their remote locations. From an operating and reliability perspective, corrective maintenance provides assurance that this equipment will perform as designed and that system operations can be performed efficiently. The SCADA Maintenance Program provides for maintenance of control and automation equipment that has or is suspected of failing.

Process:

The relay testing group is notified of a SCADA equipment problem or unusual condition by Distribution Dispatch.

Inspection and Maintenance:

A field technician or engineer determines if the suspect unit is functioning correctly. If not, each sub-assembly is tested and defective components are replaced using functioning spares. The unit is tested for proper operation using portable test equipment. When the unit is determined to be operating correctly, it is returned to service.

Field Reporting:

A corrective maintenance report form is prepared for each investigation. The report includes information that identifies the device involved, its system location, the nature of the problem, and the corrective actions taken.

Data Management:

Corrective maintenance report form data is captured in the substation maintenance database.

Substation Building, Site and Yard Maintenance Program

Program Scope:

Distribution substations not only contain electrical equipment, conductors and devices, but also buildings, structures, enclosures and foundations that support those facilities. These support facilities are exposed to the elements and affected by the changing seasons. Over time, maintenance repairs or replacement may be required. The Substation Building Site and Yard Maintenance Program is designed to ensure that civil plant associated with distribution substations is maintained.

Process:

Civil repair work or replacements are identified, categorized, and prioritized through civil inspections conducted every two years. Civil repairs and replacement work are also reported as found through substation electrical inspections. Repairs and replacements requiring significant investment, engineering, or materials are referred to engineering for follow up under the Substation Planned Maintenance Projects Program. More minor repairs are captured in the substation maintenance application as corrective maintenance tasks. Taking into consideration the type of corrective maintenance required, the priority for the work, and the season, as well as overall civil workload, and available resources, the supervisor responsible for civil maintenance assigns corrective maintenance tasks to the construction work group for completion. The following guidelines are used for conducting a civil inspection and in establishing corrective maintenance priorities.

Higher Priority Maintenance

- Are gate chains installed?
- Are gates properly aligned?
- Are gate hinges damaged?
- Is there a gap under the gate that would allow easy entry to the substation?
- Is the fence fabric attached properly?
- Are there holes in the fabric that require attention?
- Is there a gap between the fabric and ground that would allow easy access to the substation?
- Is the barbed wire missing or not attached properly?
- Is the barbed wire rusted to the point of breaking?
- Is the barbed wire creating a safety hazard?
- Are the entry and emergency exit door locks in good working order?
- Are the entry and emergency exit doors in good working order?
- Are they warped?
- Do the hinges operate properly?
- Do the doors and jambs have holes rusted through or are they loose?

- Is the door window glass cracked?
- Is water leaking from the roof onto equipment?
- Is roofing loose and could it fall off?
- Are windows broken or is glass missing?
- Is yard stoning required to eliminate gaps under fence that could allow easy access to the substation?
- Is grading required to eliminate major tripping hazards or unsafe conditions?

Moderate Priority Maintenance

- Are doors rusted or weathered and in need of replacement but still in working order?
- Are doorjambs rusted or rotted and in need of replacement but still in working order?
- Are locks and hinges working properly but worn?
- Are windows not working properly?
- Is window glass cracked?
- Do windows have broken or missing parts?
- Is weather stripping worn out or missing?
- Is the siding structurally sound but rusted or dented allowing some water to penetrate the building?
- Is tuck-pointing missing allowing some water to penetrate the building?
- Are floors or foundations cracked and spalling but otherwise structurally sound?
- Are there minor roof leaks that are not affecting equipment but the roof is otherwise sound?
- Are the soffits and fascia rusted or rotted allowing animals or insects to nest or enter the building?
- Are gutters and down spouts rusted through or dented requiring replacement?
- Is insulation falling apart or missing?
- Are there holes in the siding that penetrate to the outside?
- Does cubicle steel work need to be replaced?
- Are foundations extensively damaged from cracking and spalling?
- Are slabs cracked and spalled to the extent that equipment will not roll across smoothly?
- Does structural steel require repair?
- Is standing water present?
- Are drain tiles damaged or collapsed?
- Are parts of the grounding grid exposed?
- Are trenways collapsed or damaged?
- Are all warning signs present and legible?
- Does any equipment require repair?
- Has the frost heaved or caused line and corner posts to tip without creating a situation where the gap under the fence would allow easy access to the substation?

Lower Priority Maintenance

- Does the entire yard need to be re-graded due to snow plowing?
- Are there areas that need re-stoning due to settling?
- Is minor landscaping required?

Field Work Packets:

Personnel responsible for civil maintenance work "task" specific corrective maintenance items in the substation maintenance database generating a field order that is assigned to a field crew.

Field Reporting:

The field crew completes the corrective maintenance task and records the completion date on the field order. This information is captured in the substation maintenance database closing out the corrective maintenance task.

Data Management:

The substation maintenance database is the principal repository for information about civil corrective maintenance work.

Substation Property Management Program

Program Scope:

Distribution Substations are located in rural, suburban and urban residential areas, and commercial and industrial areas. Property management varies based on the characteristics of the substation, its location, and operating requirements. Snow accumulation must be managed in order for equipment to be operated and maintained, and to provide a safe and secure site. Grass cutting and bare ground weed control contributes to operating capabilities and system reliability. The Substation Property Management Program addresses snow removal, grass cutting and bare ground weed control at distribution substation sites throughout Wisconsin Electric's service territory.

Process:

A list of substations that require snow removal, grass cutting or bare ground weed control is maintained. The listing provides information that will help contractors locate the site and provides an estimate of the area to be cleared or cut. Snow removal and grass cutting are performed at times prescribed in contract specifications. Bare ground weed control usually begins in May and runs into August each year.

Substation Equipment Painting Program

Program Scope:

Substation equipment exposed to the elements will become weathered and deteriorate over time. Paint applied as a preventative maintenance measure, can limit damage and extend the useful life of the equipment. Painting also helps to retain a desirable aesthetic image of the property. The Substation Equipment Painting Program addresses painting needs for distribution substation equipment, structures, and cabinets.

Process:

Equipment, structures and cabinets to be included in each year's painting schedule are selected from information gathered during on site inspections. Priorities are assigned as follows:

1. Critical equipment requiring painting
2. Equipment with rust or holes requiring repair and painting
3. Painting as a preventive measure
4. Painting to maintain/improve esthetics

"Critical" equipment is that which is essential to the operation of the substation, the most expensive to replace, or that which may cause an outage that would not be easily remedied.

The program administrator provides a list of maintenance painting work to the substation maintenance group during the first quarter of the year. Painting work is listed according to priority. The substation maintenance group is responsible for contracting, scheduling and managing the work.

Inspection and Maintenance:

Substation equipment is inspected for required painting every two years. Substation structures, cabinets, conduit, doors, siding, etc. are examined for painting needs. Measuring paint thickness is a technique that may be used to establish the need for painting. The record of previously reported painting maintenance work is compared to 'as found' conditions and updated as necessary. A written description of the equipment condition including the equipment's position number/name, location, painting priority and the inspection date is prepared for newly identified devices or structures that needs to be painted.

Data Management:

Records for equipment and structures requiring painting are maintained in substation maintenance database. These records are used to prepare the annual painting work plan. The records are updated when identified painting has been completed.

Wisconsin Electric
A WISCONSIN ENERGY COMPANY

PREVENTIVE MAINTENANCE PLAN

For the
PUBLIC SERVICE COMMISSION
OF
WISCONSIN
RULE 113.0607

FOSSIL GENERATION

WISCONSIN FACILITIES

Approved by: Scott A Patulski

Title: Assistant Vice President - Operations

Date: 15 January 2001

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Scope:

The purpose of this Preventive Maintenance Plan is to outline and describe the preventive maintenance activities of the Company's Wisconsin-based fossil generating facilities. This plan is meant to satisfy the requirements of Wisconsin Administrative Code – Electric Service Rules, specifically PSC Rule 113.0607, Appropriate Inspection and Maintenance: System Reliability.

As practiced at Wisconsin Electric Power, preventive maintenance is composed of a number of elements and activities. The goal of this plan is to optimize the various maintenance aspects for every piece of equipment on each generating unit so as to maximize reliability while keeping costs to the lowest economic level. The main elements involve operator rounds, condition monitoring, inspections, and testing. Activities include the use of predictive maintenance technologies to analyze equipment condition relating to vibration, oil, temperature, acoustic emission, electric motor signature, and non-destructive examinations. Inspection activities include those done while the equipment is in service, out of service, or where formal root cause investigations are conducted. Testing activities include those done to comply with regulatory or insurance requirements, equipment performance tests, functional checking, and safety related tests.

The Company's maintenance strategy involves the integration of complementary maintenance techniques to maximize equipment reliability and reduce maintenance and operating costs. The relative proportions of various maintenance techniques utilized for each unit's maintenance strategy varies widely over time, and from facility to facility. There has been a progression of strategy as the proportions and active focus on various maintenance techniques have changed. In the current maintenance strategy there are four major techniques that integrate to form Condition Based Maintenance (CBM). The four major techniques are: Reactive Maintenance (RM), Preventive Maintenance (PM), Predictive Maintenance (PDM), and Proactive Maintenance (PAM).

Reactive Maintenance
In the 1970's most maintenance resources were used to react to equipment breakdowns that had caused major operational losses. Although not all maintenance was reactive, the other techniques were small compared to the total effort and were often initiated only when it became apparent that they were necessary to prevent short-term failures.

Reactive Maintenance is not necessarily bad. For some equipment, such as smaller components that are not critical to production, it is the best technique to use. For others, though, it will result in very high repair costs and excessive lost production. It is one of the techniques that must be appropriately applied in order to result in the optimum maintenance strategy for a facility.

Preventive Maintenance
Preventive maintenance (PM) uses regularly scheduled inspections, tests, services, repairs, replacements, and other tasks to reduce the frequency and impact of equipment

failures. These maintenance activities are performed on a calendar or operating time interval basis to extend the life of equipment and prevent premature failure. Manufacturers usually include a list of these activities and their frequency that will optimize the life and prevent failure of their equipment. This technique assumes that the condition of the equipment and its need for maintenance can be correlated with time. Preventive maintenance was the primary strategy of the 1980's and resulted in a significant reduction in maintenance costs, while simultaneously resulting in an increase in reliability and availability. One of its benefits is the identification of the early stages of equipment deterioration that, unless remedied, would result in secondary damage at failure. This accounts for a significant part of the lowered maintenance costs.

Preventive maintenance is an effective technique when equipment component life span is well known and consistent, failure mechanisms are well understood, and there is a small likelihood of early failure. Unscheduled breakdowns, unnecessary maintenance, and failures as a result of mistakes made during maintenance activities are disadvantages of preventive maintenance.

Predictive Maintenance

Predictive maintenance (PDM) is a systematic approach to determining the need for equipment repair or replacement, and limiting maintenance activities to only those that are required to prevent costly major repairs or unscheduled downtime. Various monitoring systems are used to detect and analyze incipient faults. Such conditions as temperature change, vibration, insulation resistance degradation, oil deterioration, combustion product release, metallurgical microstructure change and many other detectable indicators can provide an early warning signal that failure is imminent unless maintenance is performed. This indicator monitoring and evaluation process helps reduce costs and improve reliability in several ways.

Preventive Maintenance can be deferred if PDM monitoring shows the PM procedure is not yet necessary. This can lower the overall parts and labor expenditures significantly. This also avoids the possibility of inducing a problem in equipment while doing PM's on equipment that otherwise would not have had any problem.

Equipment with indications of probable failure prior to a scheduled PM activity can be identified and scheduled for maintenance prior to failure. This avoids unscheduled equipment downtime.

Equipment with a condition that, if not repaired will lead to catastrophic failure can usually be detected with PDM techniques and repaired at a fraction of the catastrophic failure repair cost.

Proactive Maintenance

The only way to improve on a maintenance technique that prescribes the proper maintenance activity at the optimum time is to find a way to eliminate or minimize the need for maintenance. This is exactly the goal of Proactive Maintenance. When equipment failures are analyzed for root cause, the possible preventions usually fall

within three general categories: operations practices, maintenance practices, and corrective engineering.

Operations Practices. When equipment fails or incurs damage, the cause of failure can often be related to operating conditions and practices. Documenting the findings and installing operating procedures can be a major factor in eliminating failures, minimizing maintenance costs, extending equipment life, and improving availability.

Maintenance Practices. The implementation of precision maintenance procedures, such as balancing or alignment can have a profound effect on maintenance requirements and life of equipment. We have found that a precision alignment program increases bearing life, reduces maintenance costs, and increases machine availability. Post maintenance inspection is another maintenance practice that can assure that equipment will be available when needed after maintenance has been performed. Maintenance practices that are highlighted by root cause failure investigations can be utilized to reduce and even eliminate maintenance.

Corrective Engineering. Often when investigating the root cause of costly and repetitive maintenance, the source of the problem often points to design. Sometimes the selected equipment was not appropriate for the task or the environment, and a replacement that will significantly reduce maintenance requirements should be found. In other cases where design is the source of high failure rate, a material substitution or small design modification that deals with the failure cause will result in elimination of most of the previous maintenance cost, while greatly increasing reliability and availability.

The plant maintenance strategy integrates the use of reactive, preventive, predictive, and proactive maintenance techniques as appropriate for specific equipment. The proper technique mix or strategy and the correct choice for equipment are a dynamic selection process that is reevaluated often as new information and technologies present themselves.

Applicability:

In accordance with the Wisconsin PSC Rule 113.0607 requirements for utility generator's of 50 MWs or more, this preventive maintenance plan applies to the following fossil generating facility units:

Concord Units 1-4
Germantown Units 1-5
Oak Creek Units 5-8
Paris Units 1-4
Pleasant Prairie Units 1-2
Port Washington Units 1-4
Valley Units 1-2

Responsibilities:

The Plant Team Leaders at each of these facilities are responsible for implementation of this preventive maintenance plan and for ensuring the correction of deficiencies found during the preventive maintenance tasks.

Inspections:

Electrical generating units are complex facilities that are composed of many different items of equipment that are required to function together. The equipment is organized into systems that perform specific functions for the process of electrical generation. To achieve a high reliability with the systems and its equipment, various forms of preventive maintenance are in use. The forms of preventive maintenance in use factor in the item's criticality to safety, to environmental regulation compliance and to production. In addition, the forms of preventive maintenance consider the item's duty cycle and the item's service environment. Furthermore, the forms of preventive maintenance consider the anticipated failure location, degradation mechanism, degradation influence, degradation progression, expected failure timing and the detection/prevention opportunity. The following forms of preventive maintenance techniques are typically those in use:

Operator Rounds – This activity provides for first hand visual, auditory and other sensual observations of the unit's equipment. In addition, specific data is recorded regarding equipment performance relative to its expected and normal performance and whether it is within acceptable ranges. Reporting of the need for possible equipment corrective action is performed. Operator Rounds tasks are performed on a variety of frequencies dependent on the unit's system criticality but normally are done at least once per shift.

Preventive Maintenance – These tasks are minor equipment tasks performed based on the unit's system importance to power production and considering the system's component equipment operational usage, the local environment, equipment performance history and equipment supplier input. Preventive maintenance tasks include such tasks as oil changes, lubrications, instrument calibrations, and filter changes, among other things. The monitoring of equipment is based on a calendar basis, time in service, or total throughput. Task performance frequency is dependent on the particular unit, the particular equipment and the particular task.

Predictive Maintenance –

Condition Monitoring – This form of predictive maintenance is used to assess the periodic condition of certain equipment. The technologies used, but not limited to, are vibration analysis, oil analysis, thermography, acoustic detection, motor signature and non-destructive examination (NDE) such as visual testing (VT), magnetic testing (MT), liquid penetrant testing (PT), radiography testing (RT), ultrasonic testing (RT). The particular form and extent of use of these technologies is generally

dependent on the particular plant equipment and on the state of the technology. Since these technologies are in a continuous state of change or improvement, the ability to use and gain business decisions from such technologies changes over time. Use of these technologies is applied based on consideration of the state of the technology and its ability to predict the condition of equipment and to determine the likely remaining time to operate successfully until the next opportunity for corrective action.

Continuous Monitoring – This form of predictive maintenance is used on certain unit equipment of high significance or safety. These include vibration, temperature and pressure monitoring on turbine-generators and certain pumps and fans. This form of predictive maintenance provides equipment performance information and also provides for immediate equipment safety action or alarms.

Inspections --

In-Service – These are inspections performed on equipment or unit systems to determine current condition relative to design intent. These tasks are performed on equipment while operable or not operable dependent on the equipment. Frequency of these tasks is dependent on the particular task and accessibility of the equipment.

Scheduled / Planned – These are inspections performed on equipment at times of scheduled non-operation of the unit. These inspections may involve disassembly, inspection of equipment internals and use of various forms of non-destructive examinations.

Root Cause Analysis – Significant equipment failures or operational issues can lead to the use of proactive maintenance techniques and formal root cause investigations. Root cause failure analysis is a structured process to identify the basic controllable cause of a failure or issue so that it can be addressed.

Testing –

Regulatory Compliance – Testing, inspection or observation to verify that structures, systems, components and equipment continue to function or are in a state of readiness to perform. These tasks performed in accordance with regulatory or insurance requirements.

Performance – Performance testing is done on a periodic basis for selected plant equipment and systems. The performance monitoring data is used to identify equipment deficiencies and allow planning of maintenance needs. Plant performance monitoring provides both immediate and long-term trending information on each major system and

component in the cycle. As the performance of any monitored parameter deteriorates, maintenance personnel increase their focus on the particular area or component needing corrective action. This information will usually be supplemented with more detailed information from other diagnostic systems or maintenance technologies.

Surveillance or Functional – Testing, inspection or observation to verify that structures, systems and components/equipment continue to function or be in a state of readiness to perform functions.

The Company's maintenance strategy is used to maintain equipment operability and to identify equipment conditions requiring corrective maintenance. In addition, the activities described above can result in equipment upgrades, application of new equipment technologies and changes to operating practices.

The current application of the various maintenance strategies is shown in Section A "Unit Plans" for each of the applicable plant units.

Guidelines:

Guidelines and procedures for the inspection, condition monitoring or test activities are specific to the particular task as outlined Section A for each of the applicable plant units. The actual guidelines and procedures can be adjusted to include experience from operations, improved performance techniques and new technology. This information is available with the inspection, condition monitoring or test activity records.

Condition Rating Criteria:

Unit rating criteria is based on the "Generator Availability Data System" requirements as reported to the North American Electric Reliability Council. The inspection condition monitoring or test activities are factored into the condition rating determination. Section B "Generator Unit Performance Data" provides a template as to how it would be reported per PSC 113.0607.

Corrective Action:

The results of the inspection, condition monitoring or test activities provide input to the maintenance of the facility. In general, maintenance is performed within a reasonable period where required to achieve operational safety, environmental compliance and to achieve unit reliability for production. The plan's results may also be factored into the budget process for future action. The details of how this is done are documented in Fossil Operations Procedure FO-121, "Financial Planning Process". In Section C "Budget Process", a flowchart diagrams the overall process.

Records:

This plan's records are updated and kept at the plant office responsible for the inspection, preventive maintenance or test. Records of each inspection, preventive maintenance or test are retained for at least ten years. Follow-up repair actions (when applicable) are retained for at least ten years.

Reports:

An annual report for the previous calendar year will be submitted to the PSC. The submittal will be on or before May 1 of each year. The report will provide notice of compliance to the preventive maintenance plan and exceptions or changes made to the plan. In addition, the annual report will provide the operating performance statistics as noted in Section B.

Section A - Unit Plans

Concord Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														X
Fuel Oil	X		X					X	X		X	X		
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	

Communications	X													X
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Concord Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Concord Unit 3

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Concord Unit 4

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Germantown Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communications	X													X
Computer	X											X	X	
Control System	X													
Electrical	X			X					X		X		X	

Distribution														
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	

Germantown Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communications	X													X
Computer	X											X	X	
Control System	X													
Electrical	X			X					X		X		X	

Distribution														
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	

Germantown Unit 3

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communications	X													X
Computer	X											X	X	
Control System	X													
Electrical	X			X					X		X		X	

Distribution														
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	

Germantown Unit 4

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communications	X													X
Computer	X											X	X	
Control System	X													
Electrical	X			X					X		X		X	

Distribution														
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	

Germantown Unit 5

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		
Natural Gas	X				X		X	X				X	X	X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communications	X													X
Computer	X											X	X	
Control System	X													

Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Oak Creek Unit 5

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X		X			X
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Flume	X								X		X			
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	

Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Deaerator	X						X		X	X	X		X	
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					

Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Oak Creek Unit 6

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X		X			X
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Flume	X								X		X			
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	

Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	

Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Oak Creek Unit 7

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X		X			X
Hydrobins	X						X	X	X		X		X	
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Flume	X								X		X			
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	

Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	

Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Oak Creek Unit 8

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X		X			X
Hydrobins	X						X	X	X		X		X	
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Flume	X								X		X			
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	

Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	

Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Paris Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Paris Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Paris Unit 3

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Paris Unit 4

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Fuel Delivery														
Fuel Oil	X		X					X	X		X	X		X
Natural Gas	X				X		X	X			X	X	X	X
Propane	X				X			X				X		X
Plant Utilities														
Air Compressor	X				X				X		X	X	X	X
Demineralizer	X						X		X	X		X	X	
Fire Protection	X							X	X		X		X	X
HVAC	X							X	X				X	
Plumbing	X													
Reverse Osmosis	X							X	X			X	X	
Service Air	X				X								X	
Service Water	X													
Sewage/Drain	X							X			X			
Waste Treatment	X							X	X		X	X		
Water Supply	X							X	X		X	X	X	
Power & Control														
Batteries	X			X				X	X			X	X	X
Breakers	X			X					X				X	
Communicatio	X													X

ns														
Computer	X											X	X	
Control System	X													
Electrical Distribution	X			X					X		X		X	
Switchgear	X			X					X		X		X	
Transformer	X		X	X			X		X		X		X	
Prime Mover														
Air Intake	X				X			X	X			X		
Ammonia	X				X		X	X	X	X	X	X	X	X
Combustor	X						X		X	X			X	
Compressor	X	X	X				X		X	X		X		
Condensate Removal	X								X				X	
Control Oil	X	X	X						X	X		X	X	
Evaporative Condenser	X			X				X	X	X		X	X	
Exciter	X	X	X	X					X	X		X	X	
Generator	X	X	X	X			X		X	X		X	X	X
Ice Production	X			X				X	X	X		X	X	
Lubrication	X	X	X	X					X	X			X	
Turbine	X	X	X	X			X		X	X		X	X	
Water Injection	X								X	X	X	X	X	

Pleasant Prairie Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X					
Hydrobins	X						X	X	X				X	
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Pumps	X	X	X			X			X			X	X	
Make-Up System	X						X		X	X			X	
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical	X			X				X	X				X	

Distribution														
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Cooling Tower	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Boiler Ventilation	X	X		X	X	X	X	X	X		X		X	
Burner	X			X					X	X		X	X	

Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Deaerator	X						X		X	X	X		X	
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X	X	X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
SO3 Equipment	X				X		X	X	X		X		X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Pleasant Prairie Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X					
Hydrobins	X						X	X	X				X	
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Car Dumper	X	X	X			X	X	X	X	X				X
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X						X				X			
Natural Gas System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		
Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X

Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Intake Pumps	X	X	X			X			X			X	X	
Make-Up System	X						X		X	X			X	
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Vacuum System	X				X		X		X				X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	

MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Cooling Tower	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Boiler Ventilation	X	X		X	X	X	X	X	X		X		X	
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate	X						X	X	X		X			

Tank														
Deaerator	X						X		X	X	X		X	
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X	X	X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
SO3 Equipment	X				X		X	X	X		X		X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Port Washington Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Hopper	X						X	X	X					
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X								X					
Conveyor	X	X				X		X	X	X				X
Crusher	X	X				X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Burner	X			X					X	X		X	X	
Fans	X	X							X					
Feeder	X	X			X			X	X	X		X		
Fuel Bins	X								X				X	

Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X							X					
Pulverizer	X	X		X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X		X	X	X	X	X	X	X	X	X	X	X
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X			X	X	X	X	X		X	X	X	X
HVAC System	X	X		X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Intake Flume	X								X		X			
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X			X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	

Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Circ Pump	X	X		X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X		X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X		X	X		X		X	X		X		
Boiler Feed Pump	X	X		X	X	X	X		X	X		X		
CEM System	X							X	X	X	X	X	X	
Chemical Treatment	X						X	X	X		X		X	X
Deaerator	X						X		X	X			X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Drum	X						X		X	X			X	
Dry Sorbent Injection	X							X	X	X	X	X		
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X		X	X	X	X		X	X		X		

Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X		X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Port Washington Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Hopper	X						X	X	X					
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X								X					
Conveyor	X	X				X		X	X	X				X
Crusher	X	X				X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Burner	X			X					X	X		X	X	
Fans	X	X							X					
Feeder	X	X			X			X	X	X		X		
Fuel Bins	X								X				X	

Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X							X					
Pulverizer	X	X		X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X		X	X	X	X	X	X	X	X	X	X	X
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X			X	X	X	X	X		X	X	X	X
HVAC System	X	X		X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Intake Flume	X								X		X			
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X			X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	

Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Circ Pump	X	X		X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X		X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X		X	X		X		X	X		X		
Boiler Feed Pump	X	X		X	X	X	X		X	X		X		
CEM System	X							X	X	X	X	X	X	
Chemical Treatment	X						X	X	X		X		X	X
Deaerator	X						X		X	X			X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Drum	X						X		X	X			X	
Dry Sorbent Injection	X							X	X	X	X	X		
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X		X	X	X	X		X	X		X		

Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X		X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Port Washington Unit 3

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Hopper	X						X	X	X					
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X								X					
Conveyor	X	X				X		X	X	X				X
Crusher	X	X				X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Burner	X			X					X	X		X	X	
Fans	X	X							X					
Feeder	X	X			X			X	X	X		X		
Fuel Bins	X								X				X	

Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X							X					
Pulverizer	X	X		X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X		X	X	X	X	X	X	X	X	X	X	X
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X			X	X	X	X	X		X	X	X	X
HVAC System	X	X		X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Intake Flume	X								X		X			
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X			X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	

Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Circ Pump	X	X		X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X		X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X		X	X		X		X	X		X		
Boiler Feed Pump	X	X		X	X	X	X		X	X		X		
CEM System	X							X	X	X	X	X	X	
Chemical Treatment	X						X	X	X		X		X	X
Deaerator	X						X		X	X			X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Drum	X						X		X	X			X	
Dry Sorbent Injection	X							X	X	X	X	X		
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X		X	X	X	X		X	X		X		
Feedwater	X			X	X		X		X	X	X	X		

Heater														
Induced Draft Fan	X	X		X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Port Washington Unit 4

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Hopper	X						X	X	X					
Hydrovactor	X						X		X		X			
Precipitator	X						X	X	X		X	X	X	X
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X								X					
Conveyor	X	X				X		X	X	X				X
Crusher	X	X				X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			
Propane System	X										X			X
Fuel Preparation														
Burner	X			X					X	X		X	X	
Fans	X	X							X					
Feeder	X	X			X			X	X	X		X		
Fuel Bins	X								X				X	

Ignitor System	X				X			X	X	X			X	X
Primary Air Fan	X	X							X					
Pulverizer	X	X		X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X		X	X	X	X	X	X	X	X	X	X	X
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X			X	X	X	X	X		X	X	X	X
HVAC System	X	X		X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Intake Flume	X								X		X			
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X			X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protection				X				X	X		X		X	

Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Circ Pump	X	X		X		X		X	X	X		X		
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X		X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X		X	X		X		X	X		X		
Boiler Feed Pump	X	X		X	X	X	X		X	X		X		
CEM System	X							X	X	X	X	X	X	
Chemical Treatment	X						X	X	X		X		X	X
Deaerator	X						X		X	X			X	
Demineralizer	X				X		X	X	X	X	X	X	X	
Drum	X						X		X	X			X	
Dry Sorbent Injection	X							X	X	X	X	X		
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X		X	X	X	X		X	X		X		
Feedwater	X			X	X		X		X	X	X	X		

Heater														
Induced Draft Fan	X	X		X	X	X	X		X	X		X		
Process Steam	X			X	X		X	X	X				X	X
Reheater	X			X	X		X		X	X			X	
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Valley Unit 1

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X					
Hydrobins	X						X	X	X				X	
Hydrovactor	X						X		X		X			
Baghouse	X							X	X		X	X	X	
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			X
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
District Heating System	X			X	X		X	X	X				X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protectio				X				X	X		X		X	

n														
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Circ Water Tunnel							X		X				X	
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Deaerator	X						X		X	X	X		X	
Drum	X						X		X	X			X	

Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	
Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

Valley Unit 2

Systems and Equipment	Operator Rounds	Predictive - Condition Monitoring						Inspections			Testing			
		Vibration	Oil Analysis	Thermogrphy	Acoustic	Motor Signatre	NDE	In-Service	Schedule Planned	Root Cause Analysis	Regulatory Complianc	Performanc	Surveillanc or Functional	Safety
Ash Handling														
Clinker Grinder	X								X					
Gate/Feeder	X								X					
Hopper	X						X	X	X					
Hydrobins	X						X	X	X				X	
Hydrovactor	X						X		X		X			
Baghouse	X							X	X		X	X	X	
Pump	X	X				X			X				X	
Silo/Collector	X						X		X					
Unloader	X							X	X					
Fuel Delivery														
Coal Silo	X						X		X					
Conveyor	X	X	X	X	X	X		X	X	X				X
Crusher	X	X	X			X			X					
Hopper/Chute	X						X		X					
Scale	X							X	X	X		X		
Fuel Oil System	X										X			
Natural Gas System	X										X			X
Propane System	X										X			X
Fuel Preparation														
Feeder	X	X			X			X	X	X		X		

Pulverizer	X	X	X	X	X	X	X	X	X	X		X	X	X
Plant Utilities														
Air Compressor	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CEM System	X							X	X	X	X	X	X	
Demineralizer	X				X		X	X	X	X	X	X	X	
District Heating System	X			X	X		X	X	X				X	
Elevator	X						X	X	X		X		X	X
Fire Protection	X	X	X		X	X	X	X	X		X	X	X	X
HVAC System	X	X	X	X	X			X	X		X	X	X	
Inlet Tunnels	X								X					
Lighting System	X								X		X		X	
Plumbing System	X								X		X		X	
Service Pipe	X						X						X	
Service Pump	X	X	X		X	X		X	X	X		X	X	
Sewer/Drain	X								X		X		X	
Trash Rack	X							X	X				X	
Traveling Water Screen	X							X	X	X			X	
Waste Treatment	X				X		X	X	X	X	X		X	
Power & Control														
Computer System								X	X				X	
Controls								X	X				X	
Elec Breaker	X			X				X	X				X	
Electrical Distribution	X			X				X	X				X	
Gai-Tronics								X	X				X	
MCB	X			X				X	X		X		X	
Relay/Protectio				X				X	X		X		X	

n														
Transformer	X		X	X	X			X	X		X		X	
Prime Mover														
Chorination System	X							X	X		X	X	X	X
Circ Pump	X	X	X	X		X		X	X	X		X		
Circ Water Tunnel							X		X				X	
Condenser	X						X		X	X		X	X	
Exciter	X	X		X				X	X	X		X	X	
Generator	X	X	X	X			X	X	X	X	X	X	X	X
Hydrogen System	X				X			X	X	X		X	X	X
Hotwell Pump	X	X	X	X		X		X	X	X		X	X	
Steam Air Jet	X								X	X		X	X	
T/G Oil System	X		X					X	X	X			X	X
T/G Seal System	X		X					X	X	X			X	X
Turbine	X	X	X	X	X		X	X	X	X		X	X	X
Vacuum System	X				X			X	X				X	
Steam Generation														
Air Heater	X	X	X	X	X		X		X	X		X		
Boiler Feed Pump	X	X	X	X	X	X	X		X	X		X		
Burner	X			X					X	X		X	X	
Chemical Treatment	X						X	X	X		X		X	X
Condensate Tank	X						X	X	X		X			
Deaerator	X						X		X	X	X		X	
Drum	X						X		X	X			X	
Ductwork	X			X	X		X		X					
Economizer	X				X		X		X	X			X	

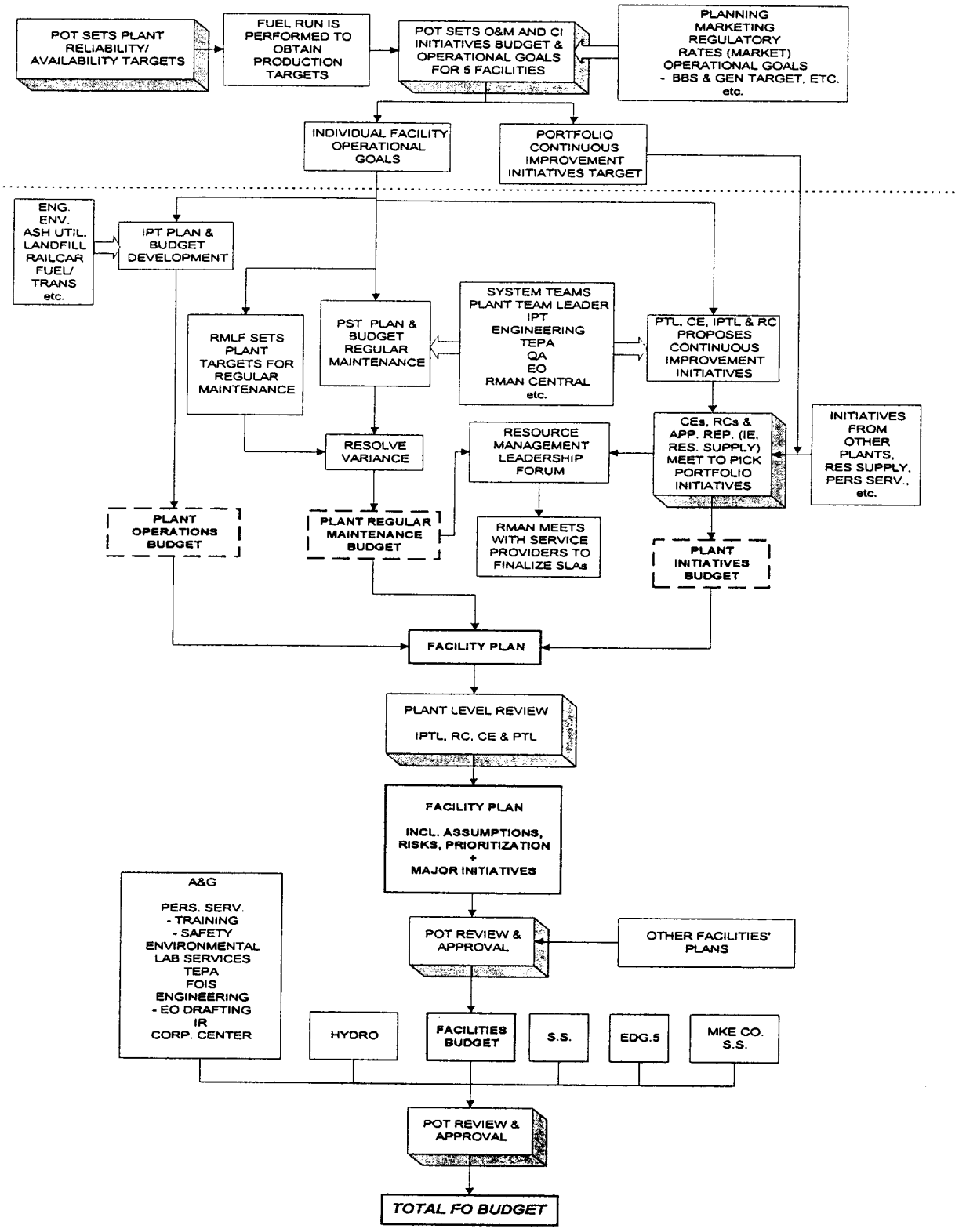
Forced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Feedwater Heater	X			X	X		X		X	X	X	X		
Induced Draft Fan	X	X	X	X	X	X	X		X	X		X		
Ignitor System	X				X			X	X	X			X	X
Process Steam	X			X	X		X	X	X				X	X
Sootblower	X				X			X	X	X			X	
Stack	X						X		X		X			
Superheater	X			X	X		X		X	X			X	
Waterwall	X			X	X		X		X	X			X	

SECTION B -- GENERATOR UNIT PERFORMANCE DATA

Data for the period of January 1, 2000 through December 31, 2000										
Generator Unit	**Technology Type and Primary Fuel**	**Net Dependable Capacity - Summer**	**Net Dependable Capacity - Winter**	**Net Capacity Factor**	**Forced Outage Rate**	**Scheduled Outage Factor**	**Net Heat Rate**	**Net Generation (MWH)**	**Fuel Consumed (1000 tons coal)**	**Fuel Consumed (million CF gas)**
Port Washington Unit 1										
Port Washington Unit 2										
Port Washington Unit 3										
Port Washington Unit 4										
Valley Unit 1										
Valley Unit 2										
Oak Creek Unit 5										
Oak Creek Unit 6										
Oak Creek Unit 7										
Oak Creek Unit 8										
Concord Unit 1										
Concord Unit 2										
Concord Unit 3										
Concord Unit 4										
Germantown 1										
Germantown 2										
Germantown 3										
Germantown 4										
Germantown 5										
Paris 1										
Paris 2										
Paris 3										
Paris 4										

SECTION C -- BUDGET PROCESS

FO FACILITY BUDGET PROCESS



PREVENTIVE MAINTENANCE PLAN
POINT BEACH NUCLEAR POWER PLANT

February 1, 2001

Scope:

The purpose of this Preventive Maintenance Plan is to outline and describe the inspection and planned maintenance activities performed to ensure the continued high quality, safe, and reliable service of the Company's Point Beach Nuclear Power Plant. The actions described in this plan are factored into determining the necessity for equipment replacements or repairs. This plan satisfies the requirements of Wisconsin Administrative Code – Electric Service Rules, specifically, PSC Rule 113.0607, Appropriate Inspection and Maintenance: System Reliability.

As practiced at the Point Beach Nuclear Power Plant, preventive maintenance is composed of a number of elements and activities that are designed to achieve a high level of reliability during all modes of operation including plant shutdown conditions. These elements and activities involve scheduled operator observations, planned inspections, condition monitoring, surveillance testing, as well as planned maintenance tasks labeled as "preventive maintenance". The implementation of these tasks is under continuous assessment in order to achieve a high level of plant unit reliability and compliance with federal requirements for licensed nuclear facilities.

Applicability:

In accordance with the Wisconsin PSC Rule 113.0607 requirements for utility generators of 50 MWs or more, this Preventive Maintenance Plan applies to the Point Beach Nuclear Power Plant (PBNP).

Responsibilities:

The management of PBNP's Operations, Maintenance, and Engineering Organizations share responsibility for implementation of this preventive maintenance plan and for ensuring the correction of deficiencies found during the execution of preventive maintenance tasks.

Preventive Maintenance –

Time based maintenance tasks are performed based on the component/system's importance to plant safety and power production. The scope and frequency of these tasks are determined based on consideration of the component/system's operational usage, the local environment, equipment performance history and equipment supplier input. Examples of preventive maintenance tasks executed at PBNP include oil changes, lubrications, instrument calibrations, filter changes, monitoring of equipment/parts expected to wear, and time based inspections/replacements of selected components.

Feedback mechanisms are built into the execution loop for preventive maintenance tasks such that task frequency and scope are optimized on an ongoing basis.

Predictive Maintenance –

Several primary predictive maintenance technologies are employed to assist in accurately assessing equipment condition. These technologies provide the information needed to assess equipment condition and, therefore, form the basis for the site's predictive maintenance program. The frequency or these tests and inspections is based upon a combination of the vendor recommendations and actual performance history. A deviation in performance characteristics will increase the frequency of tests and inspections as well as dictate the need for repair or replacement. Additional technologies available such as ultrasonics, nondestructive inspection techniques and monitoring of plant computer points (temperature, pressure, etc.) are used to supplement the key technologies to detect failure mechanisms not readily detectable by the primary methods. The primary technologies include but are not limited to the following:

Vibration Monitoring and Diagnostics – These techniques are used primarily for the monitoring and analysis of plant rotating equipment. This technology analyzes and trends displacement, velocity, and acceleration vibration patterns to predict the need to correct problems in rotating equipment such as degraded bearings, improper alignments, and out-of-balance or worn components prior to equipment failure.

Lubrication Analysis – These techniques are used to detect lubricant breakdown and abnormal internal equipment wear. Lubricating oil analysis is used to monitor the physical properties of lubricating oils. Some properties measured include viscosity, moisture content, acidity, and the presence of additives or contaminants such as engine fuel or dirt. Oil analysis is also used to assess machine condition based on the presence of wear metals in the lubricating oil and their relative size, constituency, and quantity.

Infrared Thermography Imaging – These techniques are based on measuring and comparing infrared radiation emitted from various equipment surfaces. Variations or anomalies in the heat emitted by a component or part can provide early indication of equipment problems. Infrared surveys can be performed on heat-producing equipment such as motors, circuit breakers, electrical distribution panels, batteries, electrical connections, thermal insulation, or rotating equipment couplings. Infrared thermography can also aid in determining condenser in-leakage locations, tank levels, internal valve leaks, and rotating equipment alignment problems.

Motor Current Analysis/Motor Circuit Evaluation – These techniques serve to monitor the electrical characteristics of selected plant motors for early signs of degradation and/or wear. Early signs of motor degradation such as insulation breakdown, phase imbalance, and stator to rotor orientation issues can be detected using these techniques.

Operating Equipment Observation – This technique does not require sophisticated data-gathering techniques or expensive test equipment but instead uses readily available equipment operating parameters and observation of equipment operation – Adverse trends in equipment operating parameters during steady-state operations or unexpected parameter changes that occur during transient conditions may indicate the need to perform more sophisticated predictive maintenance. Obvious unusual noises or smells around operating equipment may also indicate equipment problems requiring follow-up.

The extent of component degradation indicated by predictive maintenance activities is evaluated and integrated as appropriate into the corrective and preventive maintenance program. The maintenance work management process is used to plan and schedule activities to effectively and efficiently complete predictive maintenance activities.

Inspections –

Inservice – Inspections performed on equipment or unit systems to determine current condition relative to design intent. These tasks may be performed on equipment that is either operating or not operating, depending on the equipment. Selected inspections, driven by regulation due to nuclear safety considerations, are performed utilizing test methods and frequencies specified by the following:

- ASME Boiler and Pressure Vessel Code Section XI 1986 Edition "Rules for Inservice Inspection of Nuclear Power Plant Components" for Class 1, 2 and 3.
- ASME Boiler and Pressure Vessel Code Section XI 1992 Edition with 1992 Addenda "Rules for Inservice Inspection of Nuclear Power Plant Components" for Class MC and CC.

Testing –

Inservice – Periodic testing is performed on plant components to verify that they continue to function or are in a state of readiness to perform expected/design functions. Selected testing of pumps and valves, driven by regulation due to nuclear safety considerations, are performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section XI, 1986 edition and Operations and Maintenance of Nuclear Power Plants, ASME/ANSI-OM-1 1981.

Surveillance – Testing, inspection or observation to verify that structures, systems and components/equipment continue to function or be in a state of readiness to perform functions. The surveillance program is designed to meet the requirements of the station's Operating License and Technical Specifications as approved by U.S. Nuclear Regulatory Commission.

The above forms of preventive maintenance are used to maintain equipment operability and to identify equipment conditions requiring corrective maintenance. In addition, the above forms of preventive maintenance can result in equipment upgrades, application of new equipment technologies and changes to operating practices.

Equipment/Plant Performance Monitoring:

Equipment/system performance is monitored, trended and evaluated in accordance with the requirements of Code of Federal Regulations 10CFR 50.65 "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants". Compliance with this regulation, commonly referred to as the "Maintenance Rule", is periodically verified by the Nuclear Regulatory Commission. Correspondence relative to Point Beach Nuclear Plant's compliance with this rule, as per common practice with Nuclear Regulatory Commission correspondence, will continue to be copied to the PSCW.

Unit performance rating criteria based on the "Generator Availability Data System" requirements as associated with the North American Electric Reliability Council are used to develop unit operating performance statistics. "Capacity Factor", "Forced Outage Rate", "Scheduled Outage Rate", and "Availability" are examples of these measures.

Corrective Action:

The results of inspection, preventive maintenance and test activities provide input to the maintenance of the facility. In general, corrective maintenance is performed in a reasonable time period where required to achieve operational safety, environmental compliance and to achieve unit reliability for production. Scheduling and processing of station corrective maintenance is controlled by station directives and through the use of a computerized maintenance management system.

Records:

Records related to the preventive, predictive and corrective maintenance programs are maintained and retained in accordance with the station's Quality Assurance Program and Technical Specifications.

Reports:

An annual report for the previous calendar year will be submitted to the PSC. The submittal will be on or before May 1 of each year. The report will provide notice of compliance to the preventive maintenance plan and exceptions or changes made to the plan.